

***Abstract:***

I'll quickly go through a survey of common parallel programming techniques and talk about their advantages and disadvantages, and why they generally don't work for most programmers and systems. Programming current and future systems will rely much more on describing and management data layout, locality, and movement. I'll walk through a quick example of optimizing matrix multiply to demonstrate the issues. Relying on dusty deck codes for future systems will be untenable and I'll talk about the current and emerging trends in parallel programming for heterogeneous systems and domain specific languages.